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1. EDUCATION

2015 – 2019	PhD in Cognitive Neuroscience and Neuroimaging, University of York, UK. Focused on hemispheric differences in semantic cognition using resting-state and task-based fMRI methods. Supervised by Beth Jefferies and Jonathan Smallwood. Thesis approved with no corrections: external examiner Michel Thiebaut de Schotten.
2006 – 2008	MSc in Psychology, Internship in Clinical Neuropsychology. National Autonomous University of Mexico (UNAM), Mexico City. G.P.A. 9.6. *Summa cum Laude* (Excellence Program Full Scholarship, 1st in the class).
2000 – 2005	BSc degree in Psychology, Anahuac Mayab University, Yucatan, Mexico. G.P.A. 9.7. *Summa cum Laude* (Academic Merits Full Scholarship, 1st in the class).

2. PUBLICATIONS AND CONFERENCE PRESENTATIONS

2.1. Publications

Eisenhauer, S., Gonzalez Alam, T., Cornelissen, P. L., Smallwood, J., & Jefferies, E. (under review). Individual word representations dissociate from linguistic context along a cortical unimodal to heteromodal gradient. *bioRxiv*, 2023.04.25.538257. https://doi.org/10.1101/2023.04.25.538257

Krieger-Redwood, K., Wang, X., Souter, N., Gonzalez Alam, T., Smallwood, J., Jackson, R.L., Jefferies, E. (under review). Graded functional changes in ATL reflect both semantic content and process. *bioRxiv* 2023.05.04.539459. https://doi.org/10.1101/2023.05.04.539459

Gonzalez Alam, T., Cruz Arias, J., Jefferies, E., Smallwood, J., Marino Davalos, J. (under review). Ventral and dorsal aspects of the inferior frontal-occipital fasciculus support verbal semantic access and visually-guided behavioural control. Preprint in *Research Square.* https://doi.org/10.21203/rs.3.rs-1971685/v1

Gonzalez Alam, T., Mckeown, B. L. A., Gao, Z., Bernhardt, B., Vos de Wael, R., Margulies, D. S., Smallwood, J., & Jefferies, E. (2022). A tale of two gradients: differences between the left and right hemispheres predict semantic cognition. *Brain Structure and Function*, *227*(2), 631–654. https://doi.org/10.1007/s00429-021-02374-w

Gonzalez Alam, T., Krieger-Redwood, K., Evans, M., Rice, G. E., Smallwood, J., & Jefferies, E. (2021). Intrinsic connectivity of anterior temporal lobe relates to individual differences in semantic retrieval for landmarks. *Cortex*, *134*, 76–91. https://doi.org/10.1016/j.cortex.2020.10.007

Evans, M., Krieger-Redwood, K., Gonzalez Alam, T., Smallwood, J. & Jefferies, E. (2020). Controlled semantic summation correlates with intrinsic connectivity between default mode and control networks. *Cortex*, Available online 25 May 2020. https://doi.org/10.1016/j.cortex.2020.04.032

Gonzalez Alam, T., Karapanagiotidis, T., Smallwood, J., & Jefferies, E. (2019). Degrees of lateralisation in semantic cognition: Evidence from intrinsic connectivity. *NeuroImage*, *202* (June), 116089. https://doi.org/10.1016/j.neuroimage.2019.116089

Teige, C., Cornelissen, P. L., Mollo, G., del Jesus Gonzalez Alam, T., McCarty, K., Smallwood, J., … Jefferies, E. (2019). Dissociations in semantic cognition: Oscillatory evidence for opposing effects of semantic control and type of semantic relation in anterior and posterior temporal cortex. *Cortex*, *120*, 308–325. https://doi.org/10.1016/j.cortex.2019.07.002

Gonzalez Alam, T., Murphy, C., Smallwood, J., & Jefferies, E. (2018). Meaningful inhibition: Exploring the role of meaning and modality in response inhibition. *NeuroImage*, *181* (February), 108–119. https://doi.org/10.1016/j.neuroimage.2018.06.074

Wang, X., Bernhardt, B. C., Karapanagiotidis, T., De Caso, I., Gonzalez Alam, T., Cotter, Z., … Jefferies, E. (2018). The structural basis of semantic control: Evidence from individual differences in cortical thickness. *NeuroImage*, *181* (July), 480–489. https://doi.org/10.1016/j.neuroimage.2018.07.044

2.2. Recent Conference Presentations

Gonzalez Alam, T. (2023). Visual to default network pathways: A double dissociation between semantic and spatial cognition in gradient space. Invited talk to be presented at the OHBM2023 satellite event (Canada): International workshop on brain gradients.

Gonzalez Alam, T. (2023). Segregated but interacting visual-DMN pathways subserve distinct memory domains. Talk presented at the Experimental Psychological Society at UCL, London.

Gonzalez Alam, T. et al. (2022). The interplay between space and meaning involves different Default Mode subnetworks. Poster presented at the Organization for Human Brain Mapping (OHBM) Annual Meeting, Glasgow, UK.

Gonzalez Alam, T. et al. (2021). Hemispheric Differences in the Principal Gradient and Their Contribution to Cognition. Poster presented at the OHBM Annual Meeting (Virtual).

Gonzalez Alam, T., Smallwood, J., & Jefferies, E. (2019). Hemispheric differences in connectivity in semantic sites and their contribution to cognition. Poster session presented at the OHBM Annual Meeting, Rome, Italy.

Gonzalez Alam, T., Smallwood, J., & Jefferies, E. (2017). Meaningful inhibition: Evidence for visual ventral stream involvement when behavioural inhibition depends on stimulus meaning. Poster session presented at the International Conference for Cognitive Neuroscience (ICON17), Amsterdam, Netherlands.

3. EMPLOYMENT / PROFESSIONAL EXPERIENCE

2020 – to date: Research Associate with Professor Beth Jefferies working on ERC funded project: "Graded constraints in semantic cognition: How do we retrieve knowledge in a flexible way?" [FLEXSEM-771863], undertaking fMRI, DTI, TMS research using univariate, multivariate and dimensionality reduction techniques, as well as behavioural research, co-supervising a PhD student and helping with administrative duties related to the day-to-day running of the lab.

My work is focused on the hierarchical organisation of large-scale cortical networks, their hemispheric differences and their contribution to cognition in health and disease.

3.1. Research

Methods: statistical analysis in Python, SPSS and R – including regression, correlation, ANOVA, dimensionality reduction, comparing means, bootstrapping, permutation testing; analyses of intrinsic connectivity in FSL and CONN; task-based fMRI analyses in FSL; multivariate techniques applied to fMRI (MVPA and RSA); automated meta-analyses and cognitive decoding using Neurosynth and Neurovault; cortical thickness analysis in FreeSurfer; DTI analysis in trackvis/FSL; machine learning in Python and MATLAB; behavioural experiment design and implementation.

Skills: MRI Operator training (GE & Siemens); programming (Python, Bash, R, Matlab); version control (Git); statistical analyses including neuroimaging (FSL, CONN, Freesurfer, SPM, MrVista, NIPYPE, ScikitLearn, pyMVPA, SPSS, MVSP, Minitab); data handling (Pandas, SQL) and visualisation (Seaborn, Pyplot); task design and implementation (PsychoPy, Pavlovia, E-Prime, Presentation, DirectRT); reference management in Mendeley.

Recent Courses: Introduction to Bayesian Data Analysis; Machine Learning in Python, Machine Learning for MATLAB, Programming in Neuroimaging, Research, Design and Analysis in Neuroimaging, Advanced Research Methods. First Aid certification.

Research Experience:

2020 – to date: Research Associate, Department of Psychology and Neuroimaging Centre at the University of York.

2019: Data analysis consultant for the Academic Support Office, University of York, UK. Helped obtain insights to guide policy decisions in education by statistical modelling of large datasets of surveys.

2015 – 2019: PhD, University of York, funded by studentship from the Mexican Government for 4 years.

2009 – 2015: Research Fellow, Department of Psychology, Universidad Anahuac Mayab, Yucatan, México. Founded and led the Clinical and Cognitive Neuropsychology Research Group as Principal Investigator. Proposed, designed, secured funding for, and executed five research projects in neuropsychology focused on Semantics and Hemispheric Specialization for Language.

2012 – 2013: Research Stay, General Hospital of Mexico / Department of Psychology, National Autonomous University of Mexico (UNAM), México City. Worked on clinical assessment of language lateralisation in the context of temporal lobectomy for drug-resistant epilepsy.

2008 – 2009: Research Internship, International Centre for Neurological Restoration (Centro Internacional de Restauración Neurológica, CIREN). Havana, Cuba. Worked on neuropsychology of aphasia in the context of stroke.

3.2. Supervision

2022 to current: Co-supervising PhD student Ramya Balakrishnan on her project: "Characterising the impact of structural damage caused by stroke infarct on intrinsic functional networks in the brain: A resting state functional MRI study".

2018 – 2021: Trained and supervised 11 undergraduate students in data collection for their dissertation.

2017 – 2018: Supervised a new PhD Graduate Teaching Assistant (University of York).

2016 – 2018: Mini-projects supervisor for 2nd year undergraduate students in Psychology in the Brain and Behaviour and Perception and Cognition strands (University of York). Supervised eighteen groups of six students each.

2009 – 2015: Supervised seventeen undergraduate dissertations as PI of the Cognitive and Clinical Neuropsychology Research Group, Department of Psychology, Anahuac Mayab University.

2011 – 2012: Supervised eight undergraduate students' clinical practice in Neuropsychology in Anahuac Mayab University Teaching Hospital

3.3. Teaching

University of York

2018 – 2019: Statistics Tutor in the Maths Skills Centre of the University of York, providing university-wide support and help to students from Undergraduate to PhD with statistics.

2018: MSc Course, Programming in Neuroimaging (Python)

2018: Research Methods (Year 1), Introduction to SPSS

2016 – 2018, Research Methods: regression (linear, multiple), correlation, PCA, one-way, two-ways, repeated measures and mixed design ANOVAs, power analysis.

2015 – 2019: Teaching Assistant in the Department of Psychology, University of York. Delivered tutorials in 13 courses on research methods, language and development, brain and behaviour and perception and cognition strands, on topics ranging from research methods and statistics to language genes, neuropsychology, dementia, hearing and decision making. Provided support and facilitation in: Programming in Neuroimaging (MSc Course), Introduction to SPSS and Research Methods, and Helping students provide feedback effectively (Workshop).

Previous Experience

2011 – 2015: Course leader in 16 undergraduate courses in Mexico, including designing the course and its materials, planning and designing the assessments, delivering lectures, implementing the assessments, marking, tutoring and keeping records of the students. Eight of these were as Lecturer/Research Fellow in the Department of Psychology, Anahuac Mayab University (2011 – 2015), one as Visiting Lecturer at Marista University (Sep – Dec 2015), two as Visiting Lecturer at Anahuac University (Department of Psychology) and Universidad Latina (2012 – 2013). A comprehensive list of the courses taught can be downloaded from the applicant's website: www.TirsoGonzalez.me.

2009 – 2011, Course leader in 3 undergraduate courses and one laboratory course, where the role required delivering lectures, implementing assessments, teaching techniques and marking in courses that were already designed. The three courses were as Associate Lecturer at Anahuac Mayab University (2009 – 2011), and the laboratory course was as Assistant Lecturer at Universidad Latina (Sep – Dec 2009).

2009 – 2015, Designed and taught 20+ workshops and qualification modules in the Department of Psychology (UNAM), the Mexican Association of Neuropsychology, the General Hospital of Mexico, and the School of Psychology of Anahuac Mayab University. Full list at www.TirsoGonzalez.me.

3.4. Clinical Work

Clinical Skills: managing clinical work in hospital settings; clinical neuropsychology assessment and diagnosis; behavioural test batteries, standardised testing; neuropsychological rehabilitation.

2013 – 2014, Founder, coordinator and practice supervisor for the Service of Clinical Neuropsychology at Anahuac Mayab University Teaching Hospital in Yucatan, Mexico.

2008 – 2009, Neuropsychology Intern at International Centre for Neurological Restoration, Havana, Cuba.

2006 – 2008, Neuropsychology Intern at General Hospital of Mexico, Mexico City ('06 – '07); National Institute of Neurology and Neurosurgery, Mexico City ('07 – '08).

3.5. Curriculum Design

2013 – 2015, Helped develop and design curricula for Psychopedagogy, a new undergraduate degree in Anahuac Mayab University's Department of Psychology, and for the Neuropsychology Practicum in Anahuac Mayab's Teaching Hospital.

3.6. Public Engagement and Outreach

2019, Scientist in "I'm a Scientist, Get me Out of Here", March 2019 edition (Perception Zone). This is an online activity where schools connect sixth-form students with scientists so they can ask questions, chat and vote for their favourite scientist.

2003 – 2015, Founded, designed, executed and assessed the Goya Film Club Project, which started as a University Radio programme for making film culture accessible to everyone; secured funding and extended to a series of film clubs aimed at developing film culture in vulnerable populations.

2012, Wrote a book for the Secretary of Government and VIRAL (Mexico), detailing social network dynamics in a high-risk neighbourhood (Tepito, Mexico).

3.7. Administration

2018: Organising committee of Postgraduate Research Day, Department of Psychology, University of York.

2016 – 2017: Organiser of weekly journal club for my research group in York.

2009 – 2015: Organised 3 regional and 2 national academic events and conferences (Mexico).

2009 – 2015: Helped organise, prepare and submit accreditation of the School of Psychology of Anahuac Mayab University for COPAES/CNEIP as Lecturer (similar to REF for Psychology in Mexico)

2013 – 2014: Managed the Service of Clinical Neuropsychology at Anahuac Mayab University Teaching Hospital in Yucatan, Mexico.

2012 – 2014: Helped create an interdisciplinary collegiate research body spanning Health Sciences to pool research strengths (Psychology, Medicine and Nutrition Science) as part of a faculty committee at Anahuac Mayab University (Yucatan, Mexico).

4. GRANTS, SCHOLARSHIPS, BURSARIES AND AWARDS

2021, Feb: Sponsored by UKRI, obtained the UK Global Talent visa (granted to individuals with exceptional talent or leaders in their field) to work on the ERC funded project FLEXSEM-771863

2015 Sep – 2019 Sep: National Council of Science and Technology of Mexico full studentship for PhD project "Interhemispheric Differences in Semantic Cognition". **£87,760**

2019, May: Guarantors of Brain travel grant for attending OHBM in Rome. £600

2009 – 2015: Secured four Anahuac internal grants (Mexico, Yucatan) as a Lecturer / Research Fellow for funding clinical and cognitive neuroscience research projects. **£36,520**

2011, Oct: Graduated top of the class (G.P.A. 9.6/10) for studies in integrated MSc in Clinical Neuropsychology.

2008: National Autonomous University of Mexico Semester Abroad Academic Merit Scholarship for research / clinical Internship in CIREN (Havana, Cuba). **£2,185**

2006 Sep – 2008 Sep: National Council of Science and Technology of Mexico full scholarship for M.Sc. / Clinical internship studies in Clinical Neuropsychology. **£12,914**

2005, January: Graduated top of the class (G.P.A. 9.7/10) for studies in BSc. of Psychology

2000 September – 2005 January: Anahuac Mayab Academic Merits Full Scholarship. **£24,797**

5. PROFESSIONAL MEMBERSHIPS

Experimental Psychological Society

Organization for Human Brain Mapping

Full Member of the Academic Committee of the National Centre for Assessment in Higher Education in Mexico, tasked with designing items for the National Psychology Examination.

Mexican Neuropsychological Association (Full member, responsible for the scientific committee and member of the Editorial board of *Revista Mexicana de Neuropsicologia*).